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ABSTRACT

An analysis of what is currently known about the benefits and costs of assessment programs from the general perspective of state higher education policy is presented as a working paper in the final report of the Arizona Board of Regents' Task Force on Excellence, Efficiency and Competition. State and institutional approaches to assessment in higher education are discussed, and common components of assessment programs are listed. Various caveats on estimating the costs and benefits of assessment are presented. In order to understand the need for various types of assessment, an analytical framework encompassing different claims (costs and benefits of assessment) is required. Benefits and costs are arrayed against a range of parties at interest, including individual students, faculty, institutions, external constituents, and the public. Information is provided on benefits of assessment by identified parties at interest, dollar costs of assessment, and some externalities of assessment. Policy alternatives include: statewide testing of basic skills; and requiring institutions to undertake local assessment. Such a framework can help identify the major categories of cost and benefit associated with any assessment approach and with estimating trade-offs among different posed alternatives. Contains 40 references and 2 figures. (SM)

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BENEFITS AND COSTS OF ASSESSMENT IN HIGHER EDUCATION: A FRAMEWORK FOR POLICY CHOICE AND COMPARISON

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PETER T. EWELL

INTRODUCTION

Over the past three years, calls to investigate and improve the quality of higher education have rapidly escalated. Among the most visible and insistent have been initiatives aimed at determining the outcomes of undergraduate instruction. The resulting "assessment movement" has become a national phenomenon--embracing activities as diverse as state programs to determine the basic skills of entering freshmen, state and accreditation-based efforts to encourage colleges and universities to broadly investigate undergraduate outcomes, and a range of institutional efforts including testing, student surveys, and program evaluation.

Despite considerable activity, evidence about the effectiveness of assessment efforts remains scanty. Partly this is because most are new and have consequently had little opportunity to show results. Partly it is because documentation of both the benefits and the costs of "assessment" remains elusive.

Within these substantial limits, the purpose of this paper is to analyze and discuss what is currently known about the benefits and costs of assessment programs from the general perspective of state higher education policy. In drawing upon national experience in these two areas, however, appropriate caveats and adjustments may be necessary to tailor the analysis to specific economic, governance, and political conditions in the state of Arizona.

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ASSESSMENT IN HIGHER EDUCATION:

BACKGROUND

Current interest in assessing the outcomes of undergraduate education is rooted in two simultaneous but independent developments. The first is reemerging concern about the structure and content of the undergraduate curriculum. Partly fueled by national investigations of deficiencies in elementary and secondary education (for example the Nation at Risk report issued by the U.S. Department of Education in 1983), a number of reform proposals directed toward improving undergraduate education emerged in 1984-85. Among them were Involvement in Learning (the report of the National Institute for Education's Study Group on the Conditions of Excellence in American Higher Education), Integrity in the

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College Curriculum (issued by the American Association of Colleges), To Reclaim a Legacy (a report of the National Endowment for the Humanities), and Access to Quality Undergraduate Education (issued by the Southern Regional Education Board). The consensus of these reports--originating for the most part from within the academic establishment--was that undergraduate instruction was in need of considerable overhaul. Particularly recommended were:

(1) greater curricular coherence with respect to content and structure,

(2) higher expectations and standards,

(3) greater opportunity for active student involvement in learning,

(4) improved capabilities to identify and remediate learning deficiencies in incoming students, and

(5) better mechanisms for providing "feedback" on learning to students, faculty and administrators in order to guide improvements.

It is important to note that only the last two of these embrace "assessment" as it is currently understood. And both go considerably beyond the notion of collecting information on undergraduate student performance by stressing the actual uses to which such information will be put.

A second stimulus for "assessment" is increased pressure for accountability with regard to public funds invested in higher education. One component concern is the escalating cost and complexity of public postsecondary education. Both legislators and governors are becoming increasingly sensitive (especially in tight budget years) to the fact that they know very little about the actual impacts of investments that can consume substantial proportions of state general revenue funds each year. At the same time, higher education leaders have become more sophisticated in their claims about public benefit. Links between proposed investments in public higher education and statewide economic development--particularly in high technology areas--have become increasingly visible in the past decade. Both trends have focused the attention of officials and the wider public more explicitly on higher education's overall return on investment. These concerns also have spawned a series of national reports.

Prominently among them is Transforming the State Role in Undergraduate Education: Time for a Different View (issued by the Education Commission of the States) and Time for Results (a report of the Task Force on College Quality of the National Governors Association). Like the "academic improvement" reports that preceded them, these documents called for more and better data about the results of undergraduate study. In addition, however, they recommended that such information:

(1) be publicly available and comparable across institutions,

(2) be used to inform policy and resource allocation decisions at the state level, and

(3) be appropriate to inform "consumer choice" on the part of students and their parents in the decision of which college to attend.

Together, these developments have helped to stimulate varied "assessment" initiatives at both the state and institutional levels. Because of the sheer range of alternatives, some specification of the types of programs currently being undertaken is an important prerequisite for a discussion of costs and benefits--both of which will vary widely depending on program scope, intent, location, and methodology.

1. State Approaches to Assessment:

Currently, some fifteen states have established identifiable "assessment programs" through Board resolution, executive directive, or statute (Boyer, Ewell, Finney and Mingle 1987). Initiatives are expected or planned in an additional fifteen to twenty states over the next five years. State approaches to assessment differ widely, and include one or more of the following activities (Boyer and Finney 1987):

- common statewide testing of the basic skills of incoming college freshmen (in place in NJ, TX, and TN; contemplated in WA).

- common statewide testing of college students for purposes of promotion (FL, GA), to determine undergraduate program effectiveness (NJ, TN; discontinued in SD after 3 years), and/or to allocate resources to institutions (TN).

A requirement that each institution submit and receive approval for a local "assessment plan" to collect information on undergraduate outcomes consistent with institutional mission (in place in AZ, CO, NJ, VA, SD, MO, HI, GA, WI, SC); in most cases, plan approval is in some way linked to institutional funding.

States have also exhibited widely varying levels of investment in such programs. In many cases, no new dollars are associated with the mandate. In others, categorical grant programs have been used to support "demonstration projects" at individual institutions. In a few cases, substantial new dollars have been invested at the state level (in NJ, $850,000/year for college outcomes, $500,000/year for basic skills assessment; in VA, institutional grants of $10-12/FTE student at all public institutions).

2. Institutional Approaches to Assessment:

Partly in response to emerging state mandates--most of which assign responsibility for designing and carrying out assessment and evaluation activities to individual campuses--the past three years have also seen development of a considerable range of institutionally-based assessment efforts.

Before 1984, the number of institutions possessing identifiable "assessment programs" was extremely small. Best estimates by 1988 indicate that some 12-15% of American colleges and universities have actually established such programs--most of them in the past two years (for example, Hyman et al. 1988; El-Khawas 1987). Additional national survey data (for example, El-Khawas 1986) indicates widespread attention to the issue, and substantial expectations that assessment programs will be implemented in some form on a majority of public campuses.

In establishing the range (and cost) of such initiatives, it is important to stress that many existing institutional data-collection activities may be included. Prior to the emergence of

"assessment" as an issue, most colleges and universities collected considerable evaluative information about students through a variety of mechanisms (Ewell 1983). Most common are diagnostic testing to determine weaknesses in basic skills, and occasional opinion surveys designed to determine student satisfaction with campus services. Most institutions also collect a range of demographic and course performance information about their students, embodied in computerized student record systems. Generally lacking, however, and explicitly addressed by an identifiable institutional assessment program, are

(a) information on the effectiveness of the curriculum as a whole as determined by changes in overall student knowledge and skill levels, and

(b) an institutional mechanism for integrating scattered information on institutional effectiveness and using this information systematically to improve instruction.

While details of emerging institutional assessment programs vary widely, most contain sufficient common features to allow meaningful comparison and to support limited generalizations about costs and benefits. Partly this is because most such programs have been modelled on two or three widely quoted examples--most prominently for public institutions, Northeast Missouri State University and the University of Tennessee, Knoxville. Partly this uniformity is also due to the fact that most recently established programs were developed in response to state guidelines--most notably in Virginia, Colorado, and Missouri. Among the common emerging features of institutional assessment programs are the following (Ewell 1987):

- An identified office or individual assigned explicit responsibility for coordinating the assessment function, for advising individual academic units in designing assessment and evaluation procedures, and for helping to interpret obtained results for decisionmaking.

Generally this office or individual is given an identifiable budget for the activity--a budget that often reflects reallocation of existing information functions as well as funding new activities.

Reporting lines vary considerably, but generally locate the function in close proximity to the institution's chief academic officer.

While recruitment of an evaluation/assessment specialist to manage this function is occurring with increasing frequency, most common is reassignment of a faculty member in education or social science to manage the activity.

COMMON COMPONENTS OF ASSESSMENT PROGRAMS

- Basic skills testing in reading, writing, and computation for entering freshmen.

Generally this is an existing activity, reassigned to the assessment function.

At the same time, changes in this function are often made to render it more systematic. These include,

(a) ensuring that all entering students are tested (often they are not, as

they can "place out" of such testing by high school record or SAT/ACT performance--neither of which provide a good guarantee that students in fact possess the required skills);

(b) use of common test instruments (often a range of instruments are used for different types of students with noncomparable characteristics and results);

(c) mandatory placement of students into remediation when deficiencies are identified (often students are "advised" to take certain remedial courses but in fact do not do so); and,

(d) retesting students as a condition for exiting remediation using the same tests or instruments that resulted in the initial determination of deficiency (often students so tested after "completing" remediation still cannot perform effectively enough to do college level work). Such changes will generally considerably alter the character and effectiveness of basic skills testing programs.

- Evaluation of the effectiveness of "general education," by looking at the development in students of such integrative skills as critical thinking and problem solving.

For most institutions, this is an entirely new activity, as the only existing information will be student course grades in general education courses. Common practices include,

(a) administration of one or more standardized examinations to samples of students at the end of the sophomore or senior years to determine growth,

(b) design and implementation of locally-designed examinations and exercises that require students to use knowledge in an integrated fashion to solve problems, and

(c) special surveys and course evaluations that tap student perceptions about the effectiveness of general education.

- Evaluation of the effectiveness of instruction in the student's major field.

The degree to which this is a new activity depends upon the field of study. In most professional or occupational fields, existing certification, licensure, or accreditation procedures demand such assessment. In most traditional academic disciplines, no such procedures are typically in place. Consequently, establishing an explicit assessment program in this area generally entails,

(a) ensuring that all fields undertake a periodic examination of this type (usually every five to seven years),

(b) ensuring that most of the knowledge and skills objectives that the program claims to develop are in fact assessed in some way, and

(c) determining the success of graduates in employment and further study. Often these activities are made a part of existing program evaluation processes.

Generally they require departments and programs to work individually, with limited funding and technical assistance

provided through the institution's assessment program.

- o Determination of student satisfaction and behavior through periodic surveys.

Depending upon past institutional practice, this can imply a reassignment or a wholly new activity. Generally responses are sought from both current and former students, and involve,

(a) goals and goal fulfillment through attendance,
(b) reactions to and satisfactions with various aspects of the instruction and services provided,

(c) self-reported development in identified areas of knowledge and skill, and for graduates and former students

(d) current activities and an evaluation of the strengths/weaknesses of instruction received.

Often such surveys are centrally administered by assessment offices. In other cases, they are administered by different units across the campus, but are coordinated and partly supported through the assessment function.

Although the emphasis placed upon each of these activities may vary from institution to institution, they together represent a minimum set of assessment functions addressed by such programs.

All five, for example, are explicitly addressed by assessment planning documents at Arizona's three public universities.

SOME CAVEATS ON ESTIMATING THE COSTS AND BENEFITS OF ASSESSMENT

In attempting a comprehensive review of the costs and benefits of institutional assessment programs, a number of initial observations and caveats are in order. Each places important limits on what can meaningfully be accomplished. **First**, comprehensive programmatic assessment efforts are quite new. Fewer than half a dozen institutions have established such programs for a sufficient length of time for their consequences to become clear. The vast majority only initiated such activity within the last two years and are still in a planning, shakedown, or implementation mode. Consequently, their cost and payoff structures will probably be different from those typical of fully established programs. Despite similarities in coverage and function, moreover, institutional assessment programs differ markedly in administrative organization. This means that they may also differ significantly in the way they account for invested resources--particularly those having to do with reassigned personnel.

Second, because establishment of an explicit assessment function often involves a reassignment of existing activities, actually counting invested resources can be difficult. What is of interest is less the total cost of "assessment activity" than the net marginal investment in new assessment mechanisms established, plus the resource implications of reassigning old functions such as placement testing and student surveys. Moreover, because such existing functions are often scattered and inefficient, establishing a centralized coordinating mechanism can yield economies. As a result, past

attempts to estimate the cost of institutional assessment programs have concentrated on establishing the marginal costs of such programs, rather than the total investment required (for example Ewell and Jones 1986, Lewis and Wasescha 1987).

Third, while the claimed benefits of institutional assessment are many, consistent valuation of these benefits is difficult. This situation is shared by most analyses of higher education's benefits: not only are dollar equivalents hard to come by, but estimates of benefit will vary considerably across different individuals with differing value structures and preferences (Bowen 1980). As a result, there have been few definitive studies of concrete rate-of-return for investments in instructional processes in colleges and universities beyond such relatively well-defined technical areas such computer-assisted instruction. This situation considerably limits the applicability to assessment activities of formal "cost/benefit" techniques that compare the dollar values of investments with the dollar values of obtained results (Levin 1983).

Given this condition, past studies of educational impact have generally concentrated on one of two alternatives. Cost/effectiveness analyses examine invested costs in the light of some identifiable common output or criterion measure for the activity in question. But with the exception of degree program completion, few common criterion measures exist for the outputs of higher education. Indeed, it is the very absence of such measures which is in part inspiring the call for outcomes assessment in the first place. The second alternative is to compare costs with "utilities"--identifiable benefits which may vary in value across beneficiaries depending upon their individual goals and preferences. Here the primary intent of analysis is to determine which alternatives provide which kinds of benefits to which beneficiaries at what cost. While such analyses do not provide unambiguous "cost/effectiveness ratios" upon which to decide what to do, they can nevertheless provide considerable guidance for policy.

Fourth, like benefits, costs may also be subject to inconsistencies in valuation. In addition to identifiable fiscal and physical resources, the establishment of a new and controversial program may cost "political capital" or may cause considerable organizational friction over and above its observable cost. Focusing institutional and faculty attention on assessment may preclude other opportunities or may inhibit instructional innovation or risk-taking. Like educational benefits, these effects are sufficiently ambiguous that converting them into estimated dollar equivalents may lose information. Moreover, beyond the issue of how much is invested there is that of who pays. Valuation of costs may vary significantly depending upon what particular parties-at-interest actually have at stake in the process.

Finally, the nature of assessment as a "management information" activity means that it is a special kind of investment--one not easily subject to the traditional rubrics of cost/benefit or cost/effectiveness analysis. Like all activities related to management, operating an assessment program involves the investment of real resources. These entail direct and observable costs to the institution.

Benefits of information, however, are generally highly indirect. Literature on the "economics of information", for example,

is founded on management's use of information to make effective choices among posed alternatives--each of which has an associated stream of costs and benefits (for example, Huber 1980, Day 1978). If additional information can increase the probability of choosing a "profitable" alternative, investment in obtaining this information is justified up to the point where the margin of incremental "profit" disappears. But decisionmakers in higher education are rarely presented with such choices. Far more common is a situation where information--obtained at an invested cost--indicates that a particular deficiency is present and suggests some lines of attack toward addressing it. To address the deficiency, however, requires the investment of yet another increment of resources. Absent this second increment (or absent its being effective), investment in information may pay no dividends whatever. This is one reason why proponents of educational assessment and evaluation pay so much attention to explicit mechanisms for connecting evaluation information to concrete decision processes.

Taken together, these caveats suggest a treatment of the costs and benefits of institutional assessment activities with the following properties:

- Costs are appropriately treated as programmatic costs--that is, the costs associated with a formal, established, identifiable activity with sufficient organizational and budgetary identity that resources can be consistently accounted.

- Costs are appropriately treated as marginal costs.

That is the difference in investment between establishing an assessment program of given content and structure over existing information-gathering and utilization costs previously being incurred by the institution.

- Costs are appropriately treated as the costs of assessment itself, not the costs associated with actually addressing identified deficiencies.

Moreover, the costs of assesment are part of any total rate of return calculation for the costs and benefits of instructional improvement in undergraduate education.

- Some "costs," such as loss of access and reduction of risk-taking, are more appropriately treated as externalities than as direct dollar costs;

While it is in principle possible to obtain rough dollar equivalents for these costs, analysis is more meaningful if they are considered directly.

- A few claimed benefits of assessment, while difficult to render consistently in dollar terms, are sufficiently comparable across situations to in principle support a cost/effectiveness estimate;

Where results are comparable, for example claimed increases in student persistence and graduation rates, cost/effectiveness calculations are appropriate.

- Most benefits of assessment are appropriately treated as "utilities" to particular constituents in the process, each of which may,

(a) value obtained outcomes differently, and

(b) pay different shares in the total investment.

These properties define the limits for the discussion that follows.

PARTIES-AT-INTEREST

Benefits of assessment have been claimed by proponents in bewildering variety. These range from improvements in specific cognitive outcomes for individual learners to broad societal benefits achieved by greater accountability to the taxpaying public. Similarly, "costs" of assessment have been raised by critics that encompass losses of opportunity for individual students to politicization of higher education that distracts the enterprise from its fundamental ends. In order to make sense of these claims in determining the wisdom of embarking on various forms of assessment, an analytical framework encompassing the majority of these claims is required.

Figure 1 provides the foundation for such a framework by arraying benefits and costs against a range of constituencies or "parties-at-interest."

Benefits are roughly presented in terms of the degree to which they provide direct or indirect payoffs to the identified party. Costs are noted as either direct dollar consequences or as "externalities" for which calculation of dollar equivalents are for the most part inappropriate. Parties-at-interest in this scheme are identified as follows:

o Individual students

are individuals directly involved in higher education as "consumers", including currently enrolled students, former students, and potential students.

o Faculty

are members of higher education faculties currently or potentially involved in providing undergraduate instruction.

o Institutions/Programs

are colleges and universities as organizational entities, or subunits within institutions that can function relatively autonomously.

o External Constituents

are organizations external to higher education that employ the graduates of colleges and universities and that stand to gain or lose because of skills or deficiencies possessed by graduates--either in general or in particular programs (these may include business/industrial employers, local governments, social service agencies, etc.)

o The Public

are members of the general public (either as taxpayers or as the beneficiaries of improvements in general public welfare due to an educated public) and their elected representatives.

Each of these parties-at-interest may benefit or bear costs in different proportion depending upon the types of programs proposed.

This framework is intended to serve two distinct analytical purposes.

First, it can serve as a guide for systematically summarizing existing arguments and evidence about the actual impacts of institutional assessment programs.

Reviewing this body of material cell by cell for different parties-at-interest will constitute the balance of this section.

Second, the framework can be used to compare the benefits and costs of different proposed alternatives to particular constituencies--for example a common state-mandated basic skills placement examination against the establishment of incentives for institutions to create their own programs.

While such an analysis does not provide a definitive judgment about relative program cost/effectiveness, it will at least enable policymakers to select the most promising alternatives. Several such programmatic trade-offs will be considered in a following section.

1. Benefits of Assessment by Identified Parties-at-Interest:

Benefits of assessment have been claimed and documented in a variety of areas. Evidence for each will be briefly considered by potential beneficiary groups as outlined in Figure 1.

a. Individual Students:

Among the claimed benefits of establishing assessment programs for individual students are the following:

- Documentable increases in knowledge and skills.

Direct increases in student knowledge and skills are held to be a product of both the individual feedback on performance provided by testing and of improved ability to target teaching on identified weaknesses in student abilities.

Evidence from both state and institutional testing programs is fragmentary, but indicates that modest gains are partially attributable to assessment processes. In most cases, however, these gains are confined to so-called "basic skills" areas--reading, writing and computation. In Florida, for example, demonstrable increases in student writing ability have been associated with the state's College Level Academic Skills Program (CLASP) which involves testing sophomores in basic skills as a condition for advancement (Ciereszko 1987). At institutions such as Northeast Missouri State University where repeated administration of a test instrument can document the "value added" of instruction, percentage gains in English subscores as measured by the ACT Assessment Examination rose from 4.8% in 1978 to 10.6% in 1983; this period saw heavy investment by the university in enhancing assessment processes and in using the results to improve curriculum (McClain and Krueger 1985). In both cases, benefits are somewhat offset by the fact that the test-taking populations became more able due to selection biases: in Florida, less able students were deterred from taking the examination while at Northeast Missouri admissions standards rose in the same period. Similarly, it was not assessment alone that caused any increases but rather the combination of assessment and appropriate curricular action. If used to inform curricular intervention, however, modest gains in overall levels of basic skills can generally be expected.

- Increases in persistence and graduation rates due to improved advisement, placement and retention efforts.

Student assessment programs have also been widely associated with gains in student persistence and graduation. This

is due primarily to two different mechanisms.

First, at the level of individual courses, coupling assessment of pre-requisite skills with course registration policies can result in significant increases in success rates. At North Carolina State University, for example, directed placement into mathematics and pre-engineering courses resulted in 30-40% increases in course passage rates overall, and over 70% increases for minority students (Ewell 1984b).

Second, institution-level assessment results--particularly the results of student attitudinal and perception surveys--can result in documentable increases in overall rates of student retention and degree completion. At Northeast Missouri, for example, five-year degree completion rates have risen approximately 15% since initiation of comprehensive assessment (Northeast Missouri State University 1987). More typical, however, are the experiences of such institutions as Towson State University (MD) and other members of two national student outcomes assessment projects in the early 1980's that increased retention rates by 8-10% overall in three years (Ewell 1984b; Kemerer, Baldridge and Green 1982). Increased retention rates, of course, are of individual benefit in raising a given student's overall chances of obtaining a degree, and therefore of receiving the payoffs associated with degree completion.

- Increased credibility of the degree obtained.

Another claimed benefit of assessment is public demonstration of the actual "learning content" of a baccalaureate degree (McClain 1984). Given considerable evidence of wide variations in student ability among the products of different institutions, one claimed objective of student assessment is to provide concrete evidence of what students know and can do upon graduation. The claimed individual payoff in this case is increased competitiveness of graduates in the employment market.

No concrete evidence currently exists to support this proposition beyond the generally better placement rates experienced by graduates of some institutions participating in assessment. Much of this success, however, could equally be attributed to the fact that these institutions have simultaneously raised their admissions standards.

- Improved information for making initial college choices.

Rather than affecting currently enrolled students, these benefits are held to accrue to potential college students and their parents. Publicly available information on attainment levels, success rates, and the placement experiences of graduates may enable more informed consumer choices about which college or university to attend. The perceived success of graduates has traditionally been a major drawing card for "selective" institutions (Zemsky and Oedel 1983).

Evidence that assessment results can to some extent offset entering student ability in the perceived attractiveness of an institution is provided by the increased application pools at such institutions as Alverno College, Kings College, and Northeast Missouri where assessment programs have been in place for a number of years. As above, however, these increases have been accompanied by highly visible innovations in curriculum in addition to

assessment.

b. Faculty:

At the level of individual faculty members, few concrete benefits are claimed through assessment. Two, however, are of sufficient prominence to note below:

- Increases in the ability to target teaching on the identified needs of members of a given classroom.

Faculty members at institutions such as Kean College (NJ) and Kings College (PA) report that pre-assessments of student knowledge and ability significantly improve their ability to tailor instructional material to appropriate levels (for example, Farmer 1988). This allows important deficiencies in prerequisite knowledge to be quickly identified and dealt with before the term is too far advanced. It also allows adjustment in the timing and coverage of class content at an early point in the term.

- Increases in faculty ability to design and administer classroom tests.

While the basic intent of comprehensive outcomes assessment programs is to examine performance across individual classes and students, significant numbers of faculty members a all types in institutions report that the engagement in the design of assessment has improved their ability to design better tests for their own use (for example, Calhoun 1986; Banta 1985; Banta and Moffett 1987). This experience has been a particularly apparent effect of implementing assessment in the major field or department at research universities. Similar impacts have been reported with less frequency in general education at comprehensive colleges and liberal arts colleges (Curry and Hager 1987; Farmer 1988). The key here, however, is that faculty must have been actively involved in designing and administering the assessment program, though there is some evidence that participating in commercial tests such as the ACT-COMP can also result in modest faculty development benefits (Banta 1986; Forrest 1982).

c. Institutions/Programs:

By far the greatest claims of positive benefit for systematic assessment have been at the institutional or program level.

Among them are the following:

- Improvements in the sequencing and structure of undergraduate curricula.

Most institutions engaging in comprehensive assessment report significant early curricular changes as a result. Many of these changes, it is interesting to note, appear to have occurred as a result of designing the assessment (Banta 1986; Ewell 1984b).

In several reported cases, curricular change pre-dated actual data collection.

Documented curricular changes resulting from assessment activities have been of three distinct kinds.

First, there have been notable changes in the sequence of particular courses making up particular curricula. For example, at Mt. Hood Community College, course order in several technology programs was reordered--yielding increases of 10-12% in degree completion rates (Ewell 1985); at the

University of Tennessee, Knoxville, introductory courses in several major fields were made mandatory (Banta and Moffett 1987).

Second, assessment programs have in several cases led to identification and elimination of "soft-track" courses: at Northeast Missouri, elimination of such courses in mathematics and requiring students to take more solid math courses resulted in visible gains in sophomore-level math test scores (McClain and Krueger 1985).

Finally, assessment results have led to the introduction of new courses to address obvious curricular deficiencies: a good example is provided by the University of Tennessee, Knoxville where surveys of current and former students in Business indicated the need for courses in Business Law (Banta and Moffett 1987). In each of these cases, of course, the demonstrated link is between assessment and changes in the curriculum--changes that are presumed to benefit students in the form of increases in knowledge and skills. No direct evidence of such increases have as yet been demonstrated.

- Improved institutional planning and resource allocation.

A second set of institutional benefits concerns the reported utility of assessment results in making better administrative decisions--particularly those involving program continuation, investment, and disinvestment. For these benefits to occur there must be a strong linkage between assessment information and a regular and systematic process of program evaluation or review. At institutions where such linkages are present--for example the State University of New York at Albany--both institutional administrators and program/department chairs report that better decisions are made about resource allocation (Ewell 1984b). Consistent with overall mission and the results of strategic planning, investments are targeted toward identified deficiencies in curriculum in part discovered through assessment activities. Similar experiences have been reported by top administrators at the University of Tennessee, Knoxville, where assessment results are also visibly used in the program review process (Banta and Fisher 1984). In some reported cases, additional assessment information has determined a program continuation decision which would otherwise have been different. At St. Petersburg Junior College, for example, information about post-graduate success and favorable employer ratings for graduates changed a Board decision about continuing an "inefficient" program in Social Work (Ewell 1985).

- Increases in faculty time committed to teaching.

A number of observers have reported gains in faculty "time on task" expended in support of undergraduate instruction as a result of planning and implementing comprehensive assessment activities. Such reports have been particularly frequent with regard to general education--an area which often claims last priority in allocations of faculty time and attention. In such cases, faculty report talking more with their colleagues about general education issues, discussing particular course content with greater frequency, and spending more time preparing for classes and talking with students. Concrete evidence of this effect is scanty, however, and relies only on unsystematic self-reports from faculty and departmental administrators.

- Enhanced ability for institutions to obtain additional resources.

Heightened interest in assessment per se has, of course, enhanced the willingness of both public and private funders to provide resources to directly support such activities. Those institutions that have instituted programs early have generally been able to garner such funding--often in substantial amounts. More significantly, institutions that have collected assessment results over time have been able to use this information to make a better case for budgetary requests from state governments and for special program requests from foundations and other funders. In Missouri, for example, Northeast Missouri has consistently supported special appropriation requests from the legislature with a range of concrete assessment information--most recently in a library enhancement request (Krueger and Heisserer 1987). Interviews with state legislators in Missouri indicate that the availability of such information was a significant contributor to the decision to fund the institution's request--both because it directly supported action and because it provided indirect evidence of good management practice (Ewell and Boyer 1988). Similarly, Kings College (PA) has used its assessment program to obtain successive curriculum improvement grants from several national and local foundations (Farmer 1988).

d. External Constituents of Higher Education:

A number of benefits of assessment are claimed for agencies and institutions that employ higher education's graduates. Few are to date substantiated by any direct evidence. They include the following:

- Increased assurance that potential employees possess requisite basic and higher order skills.

Many institutions that employ college and university graduates have over the years been forced to design and implement their own testing programs to determine the reading, writing, and computational skills of potential employees. Largely they report implementing such programs because possession of a baccalaureate degree can no longer be taken as sufficient evidence that individuals possess required skills. Recently, for example, the US military ceased to accept a college degree as the sole source of evidence about basic skills and is requiring special testing to determine skill levels among officer candidates (Ewell 1984a). Credible higher education assessment would presumably obviate the need for such special testing programs, resulting in significant cost savings for employers.

- Increased assurance that potential employees who are graduates of specific job-related programs possess the special skills necessary to perform effectively.

This benefit parallels the above, but with respect to specific, identifiable, job-related skills. Institutions that have instituted end-of-program comprehensive examinations, practica, or projects in which job-related skills can be demonstrated in a real or simulated job setting have reported that potential employers are more likely to hire their graduates. Results of this kind have been particularly apparent in Nursing and other health professional training programs. As above, demonstration of skill before employment obviates the need for employers to "remediate" deficiencies after employment, again

resulting in a potential cost saving.

- Increased assurance that potential employees possess appropriate attitudes toward work.

Increasingly, employers report that they are concerned about whether otherwise well-trained college and university graduates possess important job-related attitudes such as motivation, persistence, and interpersonal values that support teamwork. These concerns have been instrumental in the efforts of some professional program areas to explicitly stress the development and assessment of such attitudes while enrolled--for example the American Association of Collegiate Schools of Business. To the extent that these efforts are successful, they are presumed to represent a payoff to employers in the form of a more productive workforce (e.g., Bowen 1977).

e. The General Public:

Claimed benefits of assessment for the public at large rest largely on arguments of improved accountability.

Specifically, assessment programs are held to be related to the following:

- Increased assurance that public tax dollars allocated to higher education are appropriately invested.

Much of the argument for assessment from public officials rests on the proposition that the public has a right to know the effects of invested resources.

Absent specific performance information, public accountability at least demands evidence of effective and prudent management of public enterprises.

Assessment programs are argued on both grounds. Neither is in any way quantified or quantifiable.

- Increases in general public welfare associated with other identified benefits.

Many claims have historically been made about the general benefits of an educated citizenry. They include overall increases in social productivity, cultural and personal benefits, and avoidance of such negative social consequences as crime and social disruption (Bowen 1977). The majority of such benefits can be seen as "secondary effects" of one or more identified benefits above.

2. Dollar Costs of Assessment:

Despite the fact that assessment is relatively new as a distinct activity, its direct dollar costs can be more reasonably estimated than its claimed benefits. Partly this is because many associated costs are incurred early, and can consequently be observed more readily. Partly it is because the basic ingredients of direct cost required to operate assessment programs are comparatively well defined. As a result, several past attempts have been made to establish the direct costs of such programs (Ewell and Jones 1986; Conrad and Wilson 1985; Bowen 1985; Lewis and Wasescha 1987). It is important to note that these studies have themselves been used by several state governments (for example, Virginia and New Jersey) to establish guidelines for funding institutional assessment programs. Consequently, actual available direct cost data has tended to converge in recent years: following Bowen's analysis of expenditures in higher education (1980), the amount of fundin provided itself tends to determine

"costs", because institutions spend all of what they are given. Assessment programs are no less subject to this observation than are any of the other things that institutions do.

Any discussion of assessment costs involves two distinct topics.

First, it is necessary to actually estimate the direct costs incurred--based on both the actual cost components of an assessment program and on an analysis of what institutions actually spend.

Second, it necessary to determine who pays these costs.

a. Cost Estimates for Assessment:

Two methods are generally used for arriving at estimates of program costs. The most frequent is "component costing" in which an estimate of total program cost is constructed by determining the costs associated with each of the program's requisite elements. A second method--"statistical costing"--involves analyzing a number of existing programs and calculating what is actually spent on program activities. Both methods have been used to estimate the operating costs of institutional assessment programs. Due to small numbers of existing programs, however, statistical methods have generally been used only to confirm the estimates derived from component costing.

In implementing assessment programs, institutions incur costs in four areas. They include the following:

o Instrument costs.

Various cognitive tests and student surveys constitute the technical basis for any assessment data gathering effort. Before they can be fielded, such instruments must be developed or obtained. If they are developed locally, costs are incurred by faculty and measurement specialists. After initial development, such instruments can be produced on a regular basis--generally at lower cost than comparable commercial instruments. Institutions that have developed their own examinations have usually treated their construction as a departmental activity. Common practice, for example, is to provide each department with grants of $2000-3000 to cover the direct costs of test construction. This practice tends to bury many test-making expenses in ongoing departmental administrative budgets. If the full cost of such activity were calculated, it would undoubtedly be higher than budgeted amounts. Commercial tests and surveys are usually purchased on a per unit basis. Costs range from a low of $7/instrument for such widely administered tests as the ACT Assessment to $75-$100/instrument for specialized field examinations. Costs for commercial cognitive instruments generally include analysis and scoring as well as acquisition of the instrument itself.

Commercial surveys are also generally purchased on a per unit basis, with costs ranging from $0.25/survey to approximately $1/survey. When analysis services are also used, these costs average $3-$5/ survey. In most cases, minimum orders or service charges of approximately $100 apply.

o Administration costs.

Once acquired, tests and surveys must be administered to students. At some institutions, existing testing centers established for placement or diagnostic

testing may bear some of this burden. In most cases, however, the number of instruments to be administered will require resources beyond those available in existing testing centers. At minimum, test administration requires personnel to serve as proctors. Moreover, special equipment such as projectors and tape recorders may be required for some types of examinations (for example, the ACT-COMP). Survey questionnaires will either be administered in class or by mail. In the first case, direct costs of administration will be minimal--though some personnel costs will be incurred. In the second case, experience indicates incurred costs of $2-$3/completed instrument should be budgeted--an estimate that includes more than one follow-up mailing, possible telephone follow-up, and the costs of monitoring the follow-up process.

- Analysis costs.

As noted above, commercial cognitive tests generally include analysis and processing expenses in the price of the instrument. Scoring and analytical services that cover the costs of data entry, computer analysis, and production of a simple summary report are also available for most commercial surveys. To be of maximum use, however, obtained data will probably be analyzed locally, requiring additional personnel and data processing costs. This will be particularly true for locally-designed assessments, where data coding schemes and analyses must be designed from scratch. In the initial stages of such a process, considerable care must be taken to develop error-checking procedures and methods for handling incomplete or contradictory information. Once such procedures are put in place, however, ongoing costs for analysis will be minimal--principally involving personnel and computer time.

- Coordination costs.

Most institutional assessment programs involve establishment of a central function to coordinate a range of data collection activities and to provide technical assistance to departments and units in designing, implementing, and interpreting the results of local assessments. Costs associated with establishing an office or function of this kind include those for new professional and support staff, space to house these personnel, and ongoing operating expenses. Established offices of this kind range from .5-2.0 FTE professional staff, depending upon institutional size, commitment, and the complexity of the program. In many cases, existing personnel are reassigned to provide staffing for an assessment center. Faculty with appropriate research backgrounds in the social or behavioral sciences, or Testing/Institutional Research professionals may be taken from their current assignments and given responsibility for coordinating institution-wide assessment activities, designing instruments, or for analyzing and interpreting test and survey results.

In such cases, the relevant cost consideration is that of replacing the reallocated staff member in his or her original function.

Based on these cost components, most past estimates of appropriate component costs for institutional assessment range from $7-$10/FTE student. Such estimates must be treated with extreme caution, however, as appropriate programs will vary greatly based upon institutional mission, the number and types of instructional programs offered, and characteristics of the student body.

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Estimates will also vary greatly depending upon whether and how sampling strategies are used and the degree to which the institution has already developed appropriate entry testing and survey follow-up procedures.

Statistical estimates of assessment costs based upon actual incurred costs at established institutions yield a somewhat higher estimate on a per-student basis.

Program budgets for Northeast Missouri and the University of Tennessee, Knoxville--both of which have operated identifiable assessment programs for over five years--average a bit over $10/FTE student annually. Emerging institutional programs, for example those at James Madison University and Kean College, are currently incurring costs of about $12-$15/FTE student each year. In such cases, however, higher costs are expected because considerable instrument development is being undertaken in the program's first years.

Institutional budgets for assessment submitted by all public institutions in Virginia last year documented expected costs ranging from about $8/FTE to $35/FTE. Funds actually allocated by the Virginia State Council for Higher Education for institutional assessment activity for next year averaged $12/FTE across institutions.

b. Who Pays?

While the direct dollar costs of institutional assessment can be estimated with reasonable confidence within a range of $7-12/FTE student, the question of who bears these costs can vary considerably. Different methods of allocating costs among the principal parties-at-interest will, of course, heavily determine their net payoff as a result of the activity. Existing institutional practice has involved direct dollar costs incurred by one or more of the following:

- Individual students.

Some institutions pass on the costs of assessment directly to individual students in the form of a testing fee. South Dakota's statewide assessment program, for example, is funded by a per student charge of $7/student, which covers all direct dollar costs of acquiring and scoring mandated instruments (Boyer and Ewell 1988).

Other individual institutions levy testing fees ranging from $7 to $9 per student.

Generally, the case for charging students is made on the basis of the direct benefits that students receive from the operation of a testing or assessment program.

- Faculty.

While individual faculty members may incur considerable opportunity costs and may invest considerable time through their participation in assessment, they do not generally bear any dollar cost. Indeed, if the institution chooses to invest heavily in the development of local instruments, faculty may receive direct dollar payments for their involvement.

Generally, however, these are in lieu of teaching and do not represent an increment of total income.

- Programs/institutions.

Where additional dollar support for assessment is not provided to institutions or programs for engaging in assessment--either through direct allocation or through a student fee

structure--the cost of assessment must be directly borne through reallocation. In Missouri, for example, the total cost of mandated institutional assessment must be supported by institutions themselves, as no new resources have been provided. Even in cases where some additional support is provided, it is often insufficient to cover the complete cost of the activity. Within institutions, for example, support provided to individual programs or departments for developing and piloting a major field examination is approximately $2000-$3000. Given actual incurred costs, this amount may cover only half to two-thirds of the requirement.

- The public.

To the extent that direct increments of dollar cost are not covered by student fees, they are ultimately incurred by taxpayers. On a per-taxpayer basis, however, such additional costs will be small compared to total payments for higher education. New Jersey's statewide College Outcomes Evaluation Project--currently the largest such statewide developmental effort--is budgeted at $850,000/year. Virginia has provided institutions with a total of $4.4 million for assessment in the coming year. Such investments are well within public program evaluation guidelines that call for the investment of 1-2% of total budget in evaluation activities, and well below typical corporate investments of 5-8% in research and development activities (Bowen 1977; Lewis and Wasescha 1987).

3. Some "Externalities" of Assessment:

Not all identifiable negative consequences of assessment can be appropriately treated as dollar costs. Some represent negative individual or social consequences that could be costed out, but for analytical purposes are more beneficially identified individually. Examples include limits on access to higher education that disproportionately affect members of minority groups. Others represent demonstrated consequences of assessment that may be negatively valued by some constituents but not so by others, or that represent truly non-quantifiable results. Examples include narrowed choices of programs or courses within curricula on the part of students, or limits on the freedom of individual faculty members to teach what they please as they please. Each of these identified externalities is treated by its associated party-at-interest below.

a. Individual Students:

Among the negative consequences experienced by individual students attributable to assessment are the following:

- Increased burdens associated with testing external to the classroom.

In cases where assessment is not built into the curriculum and involves additional testing or surveys, students pay a cost in lost time. This cost is particularly apparent where assessment results are used solely to inform curricular or program decisionmaking and thus have no individual consequences for students (Banta 1988). The extent of this cost can be estimated in two ways.

First, the amount of time committed can be directly estimated: for most institutional assessment programs, time commitments for students will average three to four additional hours per year. This result could be costed out at

prevailing student wage rates to obtain one estimate of lost benefits to students.

Second, some institutions have attempted to pay students directly for participation in assessment: quoted amounts range from $10-20 for a two or three hour testing session, generally held on an evening or weekend. It is important to note, however, that few students consider the reimbursement worth the effort. Indeed, widespread institutional experience with the difficulties of motivating students to commit time to assessment absent a direct evaluative consequence indicates this problem to be considerable for assessment programs that provide programmatic information only.

- o Loss of access and choice with respect to desired courses or programs.

Two kinds of negative consequences for students have been reported.

First, if assessment results are used to restrict registration in particular courses and programs, individual students may be barred from attending. If the primary consequence is to give students the opportunity to remediate deficiencies so that they may subsequently successfully complete desired courses, this loss is justified--although students may suffer time delays in completing their programs. But if a consequence is to deny access absolutely, a significant cost may be borne--particularly for members of minority groups who may perform poorly on formal assessments for a number of historical reasons.

Second, if results are used to inform curricular decisionmaking, an important consequence may be to change the structure of curricula. This may result in elimination of preferred courses, or making more uniform the sequence in which particular courses are offered. Both limit choice on the part of individual students as "consumers." Both may also imply that some students will take longer to complete their coursework. In both respects, moreover, assessment tends to result in curricular changes that limit an individual student's "right to fail."

- o Inappropriate limits on access due to embedded biases and inequities in assessment procedures.

If assessment procedures are used for "gatekeeping"--that is to deny individual students access to particular courses or programs, or to higher education generally--particular negative consequences may be experienced by members of identifiable student groups.

Three types of students are generally mentioned as negatively affected.

First, experience has shown that members of minority groups may be adversely affected by testing, due to both cultural biases in testing procedures and to historic deprivations in educational opportunity. Where such inequities are apparent, students may not only be directly affected but may also withdraw from programs because of anticipated negative impacts. In Florida, for example, the CLASP program has resulted in a more than 50% decline in degree-seekers in community college AA Transfer programs (Ciereszko 1987; Losak and Wright 1983).

Second, assessment procedures may not reflect important differences in learning style among students, and may consequently not appropriately classify them as deficient in certain skills.

Finally, most assessment instruments, regardless of their actual content, are in fact predicated on a test-taker's language ability--particularly the ability to read English (Adelman 1988).

This may imply disproportionate negative consequences for those with low verbal skills but with otherwise adequate abilities, or for those whose native language is not English.

b. Faculty Members:

Negative consequences of assessment identified for individual faculty members are as follows:

- Increased burdens involved in designing assessment instruments, administering such instruments, and interpreting results.

Emerging experience indicates that significant amounts of faculty time are involved in designing appropriate assessment activities. Commitments are especially heavy when faculty-designed instruments are used. For institutions that have accounted for such time, estimates of this commitment approximate one quarter of a full-time faculty equivalent term teaching load to develop a local departmental examination or assessment procedure. Institutions such as Kean College (NJ) or Kings College (PA) that rely heavily on faculty scoring of local instruments report heavy time commitments in assessment--approximately eight additional hours per term to grade such instruments. In both cases, however, it is arguable that this investment is part of regular teaching assignments because it is also part of the student grading procedure. Indeed, at an institution like Alverno College, distinctions between "assessment" and "teaching" have no meaning; both are part of the established curriculum. For other institutions, however, assessment may involve an added time commitment on the part of faculty that is seen as essentially unrelated to classroom instruction. This is more likely the case where commercial instruments are used.

- Perceived violations of academic freedom.

Assessment involves establishing inherent limits on what a faculty member can do in his or her classroom. As noted above, one impact is to change curriculum structure and content to ensure greater continuity among courses (and particularly across different sections of the same course). Some faculty may see this as a threat to their individual autonomy as reflected in the concept of academic freedom. It is important to note that no legally sustainable case for violations of academic freedom has historically been heard on this basis, and that the concept refers only to a faculty member's right to express personal opinions in the classroom; no case can be legally made for a faculty member not teaching assigned material, or for not teaching effectively. Nevertheless, confusions over the precise meaning of "academic freedom" in the minds of some faculty often cause notable and important political opposition to assessment.

c. Institutions/Programs:

Negative consequences at the institution or program level associated with establishing assessment programs have been noted in several areas. They include the following:

- Excessive limitations on curriculum content and "teaching to the test."

One claimed benefit of assessment lies in its impact on curriculum--particularly in areas of structure, sequencing and uniform content. Where this is process is deemed excessive, it is also seen as a negative impact. If assessment results are taken too seriously in determining what should be taught, there is a fear that only "measurable" content will be included. If results have significant consequences for the fates of individual students, moreover, incentives are strong to tailor instruction to the examination rather than viewing performance on the examination as representative of a broader range of student knowledge and abilities.

Evidence from Florida indicates that the CLASP program has had a recognizable impact on the teaching of freshman courses in English and Math in Florida public institutions. Higher pass rates on the examinations may be the result, but some faculty fear that areas not assessed by the examination are as a result being crowded out of the curriculum.

- "Opportunity costs" of substantial investments of faculty time.

Time spent by faculty in developing assessment instruments, administering them, and interpreting the results have already been noted as potential negative consequences for individual faculty members. In addition, the institution or program must consider the alternative uses of faculty time that such investments preclude. Generally these are cited in terms of lost time for research and public service activities. While no data is available to estimate the impact of such diverted effort, faculty members at the University of Tennessee, Knoxville--the only public research institution with substantial experience with student assessment--have been reluctant to invest substantially in assessment programs for more than a three-year period. Moreover, where assessment is external to the classroom and also involves a faculty time commitment, less time may be available for actual instruction. In several institutions where commercial examinations are used, for example, one classroom period per term is used to administer the examination--a diversion of from 2-4% of overall instructional time.

- Increases in administrative "overhead" associated with creating a new function.

If assessment is undertaken as a distinct and visible activity, as mandated by many states, it may require establishment of an explicit office and associated reporting structure. This may entail costs and externalities beyond those associated with the tangible assets invested in the program. Examples of such externalities include increases in administrative complexity due to establishment of an additional office or function, difficulties of coordination with other units assigned to collect information about aspects of institutional performance, and possible duplicative reporting burdens on academic units (Ewell 1988). While such additional costs can be minimized through a comprehensive approach to institutional management information and planning functions, emerging experience has shown that incurring such costs is likely--particularly in the early stages of establishing an institutional assessment program.

APPLYING THE FRAMEWORK TO SOME POLICY CHOICES

As emphasized throughout, derivation of a single cost/benefit estimate for all institutional assessment programs is both impossible and inappropriate.

Difficulties in consistently specifying costs and benefits in dollar terms, differences among proposed "assessment" programs in different institutional settings, and differences in the ways key participants value similar outcomes all conspire against such a simple answer.

What is possible is to use identifiable costs, benefits, and externalities to help sort through some proposed policy alternatives. Two such alternatives are briefly discussed in this section, using the proposed framework as a guide.

1. Statewide Testing of Basic Skills:

One leading set of alternatives centers on the perceived need to assess and remediate students entering higher education with respect to such basic skills as reading, writing, and computation. Statewide programs of this kind are currently in place in New Jersey, Tennessee, and Texas, and are being actively discussed in several other states. Basic features of such programs include,

(a) use of a single standardized examination by all institutions in the state,

(b) prohibitions against the use of results to deny admission to institutions,

(c) mandated use of results to place students assessed as deficient into appropriate remediation programs, and

(d) exit testing of students using the same instrument on completion of remediation.

Figure 2 presents major areas of benefit and cost for such a program. Using categories of benefit, cost, and externality discussed in the previous section for each party-at-interest, the figure roughly indicates the presence and intensity of each. Particularly notable are the following:

o Benefits.

Program benefits will occur particularly for individual students in the form of documentable increases in knowledge and skills and in increased chances of graduation. But both benefits, it is important to note, will only occur if remediation and associated placement are also successful--they are not direct results of the assessment program per se. Some benefits should also result for faculty, who are better enabled to teach at the appropriate level rather than being required to constantly remediate in the classroom. Moreover, external constituents and the general public will receive secondary benefits in the form of greater assurances about the skill levels of college students and greater accountability.

o Costs.

Overall dollar costs for a testing program of this kind can be estimated from past experience in New Jersey and emerging experience in Texas. Both incurred initial test development costs in excess of one million dollars. Operating costs are about $9-11/student tested, or about $4/enrolled FTE student. How such

costs should be paid is another matter. Both states currently fund the program out of general revenue. This entails a direct cost to taxpayers as well as an opportunity cost to institutions that might have received this funding for alternative purposes. Alternatively, direct costs could be passed on to students in the form of fees. In this case, there is a further choice between spreading the fee across all enrolled students as part of a tuition payment, or applying it only to those tested as they are tested. The latter alternative would have the advantage of clarity, but would be particularly burdensome for those assessed as deficient and forced to leave the institution.

o Externalities.

A program of this kind will probably entail a range of negative externalities. For individual students, all three potential side-effects would be present. Certainly, total test-taking time would increase; evidence from New Jersey suggests, for example, that institutions now administer both the statewide Basic Skills test and their own local placement examinations.

Moreover, many students will be denied their initial choice of classes or programs because of deficient performance; in New Jersey, more than a third of test takers are assessed as deficient in one or more basic skills each year. If deficiencies are detected, directed placement may significantly increase the amount of time it may take a student to obtain a degree. Major negative impacts, however, would likely be initially incurred in the form of faculty opposition and "teaching to the test."

This overall pattern might be significantly changed if particular features of the proposed program were subject to modification. For example, changing the requirement that a single, statewide instrument be used would markedly reduce faculty opposition and teaching to the test. Negative impacts would remain in these areas, but would likely be not so strong. Allowing institutions to use their own instruments, moreover, would also reduce the burden of testing for individual students. It would not, however, provide a much payoff in accountability to the general public as would a program based upon common testing.

Changing the requirement that students be tested on exiting from remediation would also shift the payoff pattern for the program as a whole. Because of a demonstrable association between directed placement and persistence, individual benefits would not be so strong as in the base program, and the benefits associated with assuring external constituents and the public that college students possess basic skills would evaporate. At the same time, such externalities such as teaching to the test and perceived violations of academic freedom would be all but eliminated.

2. Requiring Institutions to Undertake Local Assessment:

As noted earlier, the center of gravity for most state-based assessment efforts has been to require institutions to design and implement their own local assessment programs. Current Board of Regents policy in Arizona is consistent with this thrust. While many variations in what is required are apparent across the eight states where such plans are in place, their general payoff pattern is presented in Figure 3. Once again, standard categories of benefit, cost, and externality are used. Notable features are as follows:

o Benefits.

Most of the documentable benefits of this alternative are centered in the curriculum--particularly in improvements in curricular structure and sequence. Benefits to individual students are certainly present, but documentable increases in knowledge and skill will be difficult to claim. Some external benefits will also be present, but the primary focus on internal evaluation and improvement will also imply that obtained information is less directly useful to external constituents. All these benefits, of course, will depend heavily upon what the institution in fact proposes to do. Absent information on graduate placement, for example, benefits associated with consumer choice will largely disappear. Effective "packaging" of information intended largely for internal management, however, can also serve to demonstrate accountability to the public.

o Costs.

Overall costs for programs of this design are in the standard estimated range of $7-12/FTE student. Once again, however, the question of who should bear these costs has a number of answers. Student fee alternatives, as practiced in South Dakota, seem comparatively inequitable because individual students do not generally receive proportionate direct benefit. Requiring institutions to fully absorb these costs as part of their existing budget, as practiced in Missouri, may require substantial reallocation and associated opportunity costs. Where such programs are fully supported by additional dollars, as for example in Virginia and New Jersey, an additional burden is placed on the taxpayer, who may or may not receive commensurate payoff in the form of accountability and improvements in general welfare. In practice, most states share such costs between institutions and taxpayers--appropriating limited additional funds to support local assessment, or using existing categorical grant or non-base incentive funds to support a range of institutional efforts.

o Externalities.

The most important negative consequences associated with this alternative occur for faculty and for institutions. For faculty, a major consequences is a considerable investment of time in the design of assessment instruments and in scoring and interpreting the results of local examinations. Although each institution is free to choose its own approach, many faculty will also feel threatened in the initial stages of the program. Both these consequences will change depending upon the kinds of assessment instruments used: faculty-designed instruments will increase faculty burden and reduce opposition; commercial standardized tests (even if chosen by faculty themselves) will increase the perceived threat but will substantially reduce direct faculty burden. For the institution, moreover, substantial costs may be incurred in establishing an additional administrative function.

This pattern can also be substantially altered by changing one or more features of program design. For institutions, the payoff structure shifts markedly depending upon the percentage of direct costs that is covered by additional resources. If the full cost of the program must be absorbed, most institutions will see such

a program as a "breakeven" proposition at best; most will therefore initially resist its adoption as state policy. For faculty, opposition and burden are directly affected by the kinds of approaches proposed--particularly the degree to which they rest upon standardized testing and the level of choice that faculty are allowed in choosing appropriate assessment instruments and techniques. Emerging experience seems clear on the point that some degree of faculty opposition will be experienced no matter what kind of program is proposed. It is also clear, however, that the greater the degree of faculty involvement, the more likely curricular benefits will be.

For individual students, however, few features of the program's design will cause a shift in preference: most benefits are indirect, and because assessment results are not used to determine the fates of individual students, important externalities are absent. The major exception here is cost, as given uncertain individual payoffs, it will be difficult to argue that individual students should bear a substantial cost burden for this activity.

These two cases can only briefly illustrate the manner in which the particular costs and benefits of any proposed assessment alternative for Arizona might be compared. Naturally, in the absence of a concrete policy proposal on assessment, they will be indicative only. At the general level, however, the framework provided can aid in both identifying the major categories of cost and benefit associated with any assessment approach and in roughly estimating the trade-offs among different posed alternatives.

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FIGURES

Figure 1

Benefits, Costs, and Externalities of Institutional Assessment

Parties-at-Interest	Benefits	Direct Costs	Externalities
Individual Students	- Increases in knowledge/skill - Increases in graduation/persistence - Increased credibility of degree - Better information for college choice	- Testing Fees ($7-9/student)	- Burdens of additional testing - Loss of access/choice of classes/programs - Loss of access due to biases and inequities
Faculty	- Targeted teaching - Better ability to design examinations		- Burdens of designing and administering instruments - Perceived violations of "academic freedom"
Institutions/ Programs	- Improved curriculum structure and sequence - Improved planning/ resource allocation - Increased faculty time committed to teaching - Enhanced ability to acquire resources	- Full program cost, if unsupported ($7-12/FTE student)	- Narrowed curriculum/ "teaching to the test" - Opportunity costs of faculty time - Increased administrative "overhead"
External Constituents	- Enhanced employee skills • general • job-related - Better employee attitudes toward work		
General Public	- Assurance that tax dollars are well spent - Increases in general welfare	- Additional tax dollars to support total or partial cost of program	

Figure 2

Benefits, Costs, and Externalities of Institutional Assessment
Case 1: Statewide Testing of Basic Skills

Parties-at-Interest		Benefits		Direct Costs		Externalities
Individual Students	++	- Increases in knowledge/skill	+/-	- Testing Fees ($7/entering student)	-	- Burdens of additional testing
	++	- Increases in graduation/persistence			-	- Loss of access/choice of classes/programs
	0	- Increased credibility of degree			-	- Loss of access due to biases and inequities
	0	- Better information for college choice				
Faculty	+	- Targeted teaching			0	- Burdens of designing and administering instruments
	0	- Better ability to design examinations			--	- Perceived violations of "academic freedom"
Institutions/ Programs	0	- Improved curriculum structure and sequence	-	- Full program cost, if unsupported ($3/FTE student)	--	- Narrowed curriculum/ "teaching to the test"
	0	- Improved planning/ resource allocation			0	- Opportunity costs of faculty time
	0	- Increased faculty time committed to teaching			0	- Increased administrative "overhead"
	0	- Enhanced ability to acquire resources				
External Constituents	+	- Enhanced employee skills				
	0	• general • job-related				
	0	- Better employee attitudes toward work				
General Public	+	- Assurance that tax dollars are well spent	-	- Additional tax dollars to support total or partial cost of program ($300,000/year)	0	
	0	- Increases in general welfare			-	